REMARKS/ARGUMENTS

The 7/25/03 Office Rejected claims 1-14 under 35 USC §102(e) as being anticipated by Everage et al. (U.S. Patent No. 6,078,599).

A review of Everage et al. shows that system and method described therein are relate in part to "correct the wavelength shift in the wavelength chirp of the laser". Everage 2:1-2. Everage et al. discuss the fact that the wavelength chirp from a laser can change over time. The system of Everage et al. uses a wavelength detection device 40 to determine the wavelength of the laser beam. Everage et al. do not appear to take into account the fact that the accuracy of the measurements by the detection device 40 can change or drift over time. While Everage et al. teach using a detection device and a leaning algorithm to learn characteristics of the wavelength chirp from the laser 34, there does not appear to be any discussion, or recognition, of a problem associated with having the accuracy of the detection device changing over time. For example, Everage et al. state in part:

> **Laser wavelength detection device 40 is connected to a chirp acquisition system 42. Chirp acquisition system 42 includes a learning algorithm 44 that learns characteristics of a wavelength chirp from laser 34.** Because the wavelength chirp from laser 34 may change over time and repeated usage, in one embodiment, learning algorithm 44 is scalable over time to learn changing characteristics of the wavelength chirp from laser 34. One skilled in the art would recognize that learning algorithm 44 can be implemented in any computer programming language. As indicated in FIG. 4, a computer system 46 executes learning algorithm 44. Computer system 46 may be, for example, a single microprocessor, a hard-wired logic circuit, or a more complex system such as one or more personal computers. Computer system 46 may also perform conventional wavelength correction after the wavelength chirp period.
>
> **Based on the learned characteristics of the wavelength chirp from laser 34, chirp acquisition system 42 sends control signals that contain correction terms to laser wavelength adjustment mechanism 36 for suitably adjusting the wavelength output of laser 34.** As a result, the magnitudes of the wavelength shift during the wavelength chirp in the present and subsequent bursts of pulses from laser 34 are reduced, in one embodiment, to a magnitude of maximum wavelength shift of less than about 0.05 pm.

Everage 3:58-4:15 (emphasis added). As is shown by the above passage from Everage, as well as from numerous other passages, it appears that there is no recognition of the problem that the performance of the detection device can drift overtime.

As shown by the above amendment to each of the independent claims (claims 1, 3, 5, 7) these claims make clear that a drift in the measurement system is accounted for in the operation of the laser system. It is respectfully submitted that Everage et al. do not appear to disclose or suggest that there is a drift of the measurement system which should be accounted for in the

operation of the laser system. Thus, it is respectfully submitted that each of the pending independent claims are patentable over Everage.

Claim 2 depends from claim 1 and is respectfully submitted to be patentable for at least the same reasons as claim 1.

Claim 4 depends from claim 3 and is respectfully submitted to be patentable for at least the same reasons as claim 3.

Claim 6 depends from claim 5 and is respectfully submitted to be patentable for at least the same reasons as claim 5.

Claim 8 depends from claim 7 and is respectfully submitted to be patentable for at least the same reasons as claim 7.

Claims 9 and 10 are multiple dependent claims from claims 1, 3, 5 and 7, and are submitted to patentable for the same reasons as these underlying base independent claims. Claims 11-14 depend from claim 10 are submitted to be patentable for at least the same underlying reasons as the base independent claims.

Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everage in view of U.S. Patent No. 6,128,323 to Myers et al. It is respectfully submitted that neither Everage, nor Myers et al., nor any combination thereof teaches or suggests the features of Applicants' invention as set forth in the pending claims. In particular, Claims 15-19 are dependent from Claims 1, 3, 5, and 7 which recite features discussed above that are neither taught nor suggested by Everage. Myers et al. also do not teach or suggest those features, and Claims 15-19 are allowable as being dependent from Claims 1, 3, 5, or 7. Neither reference in any way addresses drift compensation of the measurement system.

Claims 1-19 were also rejected under 35 USC §102(b) as being anticipated by US Patent No. 5,835,520 (Das et al.). In rejecting the claims as being anticipated by Das et al. the Office Action refers to a number of different passages from Das et al. For example, the Office Action, specifically refers to col 6, line 19-22 of Das et al. as showing "calculating a compensated wavelength by figuring in a previously determined drift compensation value." Office Action, p. 7. It is respectfully, submitted that Das et al. do not provide any suggestion that one should compensate for the drift of a

wavelength measurement system; rather, Das et al. show that steps should be taken to minimize the drift of the measurement system. See e.g. Das et al. col. 6, lines 10-63. For example, Das et al, provides some description outlining requirements for a suitable wavemeter, stating:

> The wavemeter used for a production lithography laser has to be compact and yet meet the requirements of good relative accuracy, small long term drift, and a good absolute precision with reference to an atomic line. The requirement in each case is <.+-.0.15 pm. Further, the wavelength measurement has to be insensitive to changes in the ambient temperature or pressure. In addition, the wavemeter should be capable of measuring the spectral bandwidth (FWHM) with an accuracy of .+-.0.15 pm. The operating range of this wavemeter, on the other hand, can be relatively small, 248.35.+-.0.30 nm.

Das et al. 6:23-33. Das et al. goes on to provide more information regarding minimizing the drift of the wavemeter, stating:

> The wavemeter is calibrated at the factory with reference to a hollow cathode Ne-Fe lamp which has an absorption peak at 248.3271 nm. Experience has shown that these wavemeters can be made stable to within .+-.0.5 pm. Furthermore, to eliminate ambient pressure dependent changes, both the grating and the etalon are housed inside individual pressurized housings. Temperature stability is achieved by using very low thermal expansion coefficient etalon spacers and good thermal management of the etalon housing.

Das et al. 6:53-62. It is respectfully submitted that the teaching of Das et al. expressly appears to teach that one should take care to minimize the wavemeter drift, but provides no suggestion, that one might actually take steps to account for drift which is present a wave measurement system. Thus, the teaching of Das et al does not anticipate or suggest the methods recited by the pending claims.

Claims 1-19 were also rejected under 35 USC §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. In connection with rejecting claims 1, 3, 5, and 7 the Office Action states: "Regarding claims 1, 3, 5 and 7, the claim fails to show the wavelength measurement system for perform a plurality of function." Office Action, p. 2. It is respectfully submitted that this rejection, is not clear on a number points. The rejection states that the claims fail to show the wavelength measurement system. It is noted that in fact all of the pending claims are method claims, and it is believed that each of the claims clearly define the method which the applicant regards as the invention. It is submitted that when the claims are read with

a view to the fact that the claims are in fact method, as opposed to system, the claims are sufficiently clear. Further, the reference to a "plurality of function" in connection with the §112 rejections, is unclear, given that the method claims currently pending recite the operations of the presently claimed methods which the Applicants regard as there invention. Further, it is submitted that the above amendment to the claims help to make the claims more clear.

CONCLUSION

For the reasons set forth above, it is believed that all claims present in this application are patentably distinguished over the references, and in condition for allowance. Therefore, reconsideration is requested, and it is requested that this application be passed to allowance.

Respectfully submitted,

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